

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

DATACORE SOFTWARE
CORPORATION,

Plaintiff

v.

SCALE COMPUTING, INC.

Defendant.

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C.A. No. 22-535-GBW

JOINT CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

A. Plaintiff's Opening Position

This case involves DataCore Software Corporation's ("DataCore") United States Patent No. 9,344,235 ("the '235 Patent" or "Asserted Patent") and claims related to a method and apparatus for managing virtual volumes. The technology in the Asserted Patent reflects the culmination of DataCore's work in the field of software-defined storage solutions that improve the ways DataCore's customers store, protect, and access data.

The technology in the '235 Patent centers on a simplified and more efficient use of information technology assets by allocating physical disk drive space as needed. A significant challenge in managing data storage is the cost of physical storage resources. Another challenge is enabling the addition of storage resources without having to shut down an existing storage system. DataCore's patent describes the use of large network managed volumes to significantly increase storage capacity, without requiring the immediate addition of physical disk space. Network managed volumes, referred to as virtual volumes, can be created from a storage pool, with each network managed volume being separately allocatable to a host device (*e.g.*, client, application server, etc.).

The parties dispute the proper construction of six of the '235 Patent's claim terms. Defendant's proposed constructions are flawed because they attempt to import limitations from the specification, which disregard the plain claim language and the specification's disclosures. Defendant's argument that one claim term is clearly and convincingly indefinite under 35 U.S.C. § 112 is also flawed because it is contrary to the intrinsic record. DataCore's short, clear, and common-sense constructions should be adopted as they are anchored firmly in the intrinsic record, including the claim language and specification.

1. Factual Background and the Technology

DataCore alleges Defendant infringes claims 1 and 2 of the '235 Patent (the "Asserted Claims"). The '235 Patent covers a specific method and apparatus for managing virtual volumes that are distributed across a network. The '235 Patent explains that challenges in traditional systems include poor asset use in that host operating systems expect to exclusively "own" devices attached to them. These operating systems jealously guard their storage, holding it captive to prevent other servers that have exhausted their capacity from tapping into available space on adjacent servers. As a result, organizations waste substantial portions of their investments buying more and more storage, creating a difficult environment to manage. ('235 Patent at 1:10–20.¹) This issue is overcome, as described in the '235 Patent, by providing virtual volumes that enable simplified and more efficient use of information technology assets by allocating physical disk drives as needed.

The exemplary system, as shown in Figure 1C of the '235 Patent (reproduced below), includes a storage area network consisting of a storage domain server which interfaces with a number of physical disks and a number of host or client devices.

¹ The '235 Patent and excerpts from the prosecution history are attached to the Parties' Joint Claim Construction Chart (D.I. 41; D.I. 41-1; D.I. 41-2). Unless noted otherwise, citations to the prosecution history are with reference to the Bates number marked on D.I. 41-2 containing the prefix "DC" (*e.g.*, DC00000443).

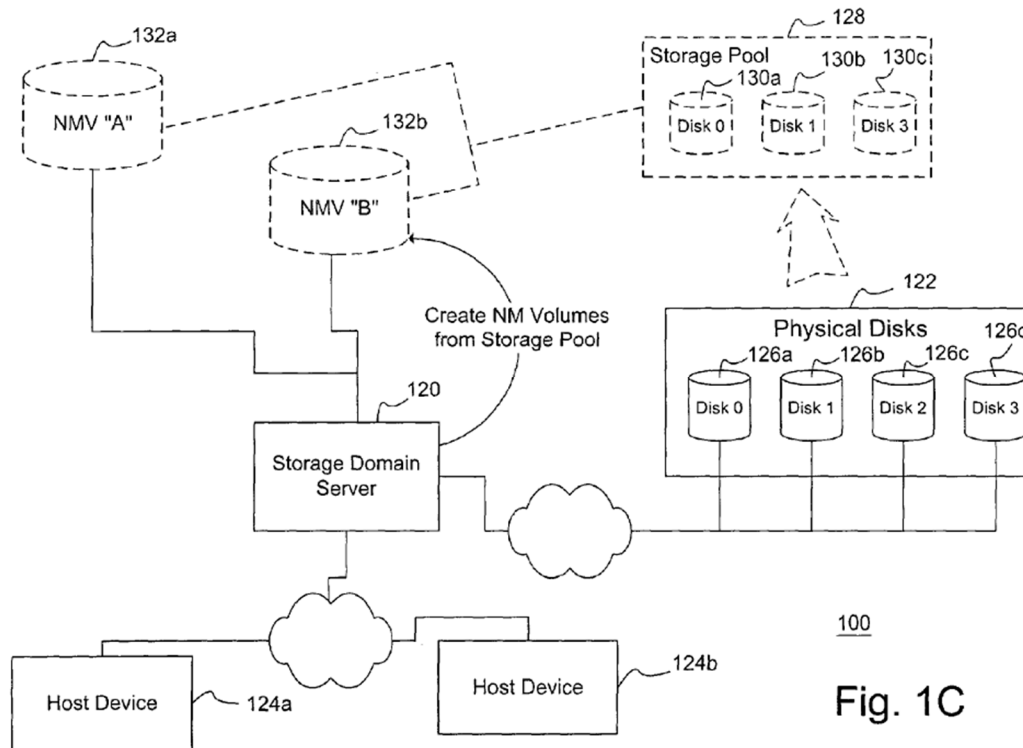


Fig. 1C

A pool of storage can be defined and populated with physical disks that are accessible in a storage area network. (*Id.* at 1:57–64.) The storage pool is not a separate physical entity but is a logical unit that is managed and defined by the storage domain server. (*Id.* at 4:26–30.) Physical storage devices are allocated to the storage pool, but the total size of the physical storage space does not need to add up to the size of the storage pool. (*Id.* at 2:19–22.) Network managed volumes (“NMV”) or virtual volumes are created from the storage pool, with each virtual volume being separately allocable to a host device. Thus, host devices that have been assigned these virtual volumes perceive ownership of the entire allocated volume (*Id.* at 1:64–2:4.) One advantage is that despite the creation of the virtual volume with a set amount of storage, present allocation of physical storage space having the same characteristics is not necessary. Physical resources are seamlessly added as needed. (*Id.*) This increases storage capacity use by allowing new volumes of virtual storage to be created without immediately requiring any physical disk space to be available for storage of data for the new volumes. (*Id.* at 2:38–40.)

Physical space is allocated dynamically, depending on the immediate need, through the use of “chunks.” The storage pool is conceptually divided into a number of chunks having a chunk size, and the virtual volumes that are assigned to the storage pool are variously mapped to those chunks. Although the virtual volumes are presented as large disks, they do not necessarily have the same amount of physical storage allocated to them at all times. Instead, physical resources are allocated to virtual volumes based upon immediate need. The physical disks that are contained in a storage pool may be divided into physical chunks that also have the chunk size. When need arises (*e.g.*, a write operation to a virtual volume that requires more physical storage than is currently allocated to the volume), a physical chunk is allocated to the storage pool (and thus to the virtual volume). (*Id.* at 6:13–26.) A mapping is maintained between the physical resources and the virtual resources. (*Id.* at 6:26–29.) This allows coherent management of the virtual volume even with multiple virtual volumes and multiple physical storage devices. (*Id.* at 2:43–47.)

Six claim terms are at issue. All of the disputed terms appear in both Asserted Claims. Defendant provides an improper limiting construction for five of the six claim terms divorced from the plain claim language and specification that contain no such limitations. Defendant asserts that the remaining claim term is clearly and convincingly indefinite and provides an alternative construction that is illogical and unsupported by the intrinsic record. DataCore’s straightforward constructions anchored in the plain claim language and specification are true to the intrinsic record and claim construction principles, as discussed below.

B. Defendant’s Opening Position

This case arises from Plaintiff DataCore Software Corporation’s (“DataCore”) allegations that Defendant Scale Computing, Inc.’s (“Scale”) storage services infringe U.S. Patent No. 9,344,235 (the “’235 patent”). The parties dispute the meaning of six terms in the asserted claims of the ’235 patent. For the reasons set forth below, one of the terms is indefinite, and Scale’s

proposed constructions should be adopted for the remaining terms because they are consistent with the plain and ordinary meaning of the terms and are grounded in the intrinsic evidence.

The technology-at-issue relates to the allocation of physical storage resources for virtual machines on a network. The purported invention-at-issue includes: A network of virtual machines running on host devices; a storage domain server managing volumes of virtual storage; storage pools of virtual disks allocated to the host devices; and physical disks that are allocated to the storage pools as needed. The invention purports to improve physical resource use by dynamically allocating physical disks as needed by a host device. A host device is assigned a virtual volume and physical disks are only allocated when needed. The physical disks are broken up into “chunks” and may be allocated partially to one virtual volume or across multiple virtual volumes. The storage domain server manages a mapping between the physical resources and the virtual resources that have been allocated. Through this mapping and dynamic allocation of physical resources, the invention purports to improve physical resource management.

II. AGREED CONSTRUCTIONS

The parties agree upon one term in the asserted patent:

Claims	Term	Agreed Construction
'235 Patent claims 1 and 2	“storage pool”	Plain and ordinary meaning, which is “a logical unit including a collection of storage volumes and properties”

III. DISPUTED CONSTRUCTIONS

The parties dispute six terms from the asserted patent.

A. “virtual volumes”

1. Plaintiff’s Opening Position

Plaintiff’s Construction	Defendant’s Construction
Plain and ordinary meaning, which is “virtual disk”	“virtual disk that is independent from the underlying physical storage”

The specification and the claims themselves establish that “virtual volume” may also be referred to as a “virtual disk.” (’235 Patent at 4:22–23.) The parties appear to agree that a “virtual volume” is a “virtual disk.” However, Defendant goes further and fundamentally errs by reading in an express limitation that “virtual volumes” must be “independent from the underlying physical storage.”

Defendant’s construction of this term attempts to improperly import limitations from the specification into the claim language and should therefore be rejected. *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (“While we read claims in view of the specification, of which they are a part, we do not read limitations from the embodiments in the specification into the claims.”)

The plain claim language and specification highlight the error of Defendant’s construction limiting the “virtual volume” to be “independent from the underlying physical storage.” The plain claim language has no limitation, and the specification and prosecution history of the ’235 Patent offer no support, requiring that the “virtual volumes” be “independent from the underlying physical storage,” as suggested by Defendant. Indeed, the specification allows for allocation of physical disk drives to storage pools, from which virtual volumes are created:

Network managed volumes may also be referred to as virtual volumes, since they are a specific type of virtual volume. A pool of storage can be defined and populated with physical disks that are accessible in a storage area network. Network managed volumes (NMV) are created from the storage pool, with each NMV being separately allocable to a host device (e.g., client, application server, etc.).

(’235 Patent at 1:60–66.) Including the requirement that virtual volumes *always* be “independent” of physical storage would improperly read out the correlation between physical and virtual storage identified in this disclosure. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (An interpretation excluding a preferred embodiment “is rarely, if ever, correct and would require highly persuasive evidentiary support.”).

Conversely, DataCore’s proposed construction is in line with the plain meaning of the term “virtual volume.” For example, the patent specification expressly provides: “the virtual volume may also be referred to as a virtual disk.” (’235 Patent at 4:22–23.) DataCore’s straightforward construction accurately captures the scope of the claim and specification and should be adopted by the Court.

2. Defendant’s Answering Position

Term	DataCore’s Construction	Scale’s Construction
“ virtual volumes ” ’235 patent, claims 1, 2	Plain and ordinary meaning, which is “virtual disk”	“virtual disk that is independent from the underlying physical storage”

The court should adopt Scale’s proposed construction that “virtual volume” means a “virtual disk that is independent from the underlying physical storage.” This construction “stays true to the claim language and most naturally aligns with the patent’s description of the invention.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

Scale’s proposed construction is consistent with the claims and the written description of the invention. Claim 1 states in part: “wherein the virtual volumes are presented to the client devices *without requiring the assigned physical storage devices to have been previously presented* to any of the client devices[.]” ’235 patent, at 14:20-23 (claim 1);² *see also id.* at 14:54-

² Unless stated otherwise, all emphasis in Defendant’s Answering and Sur-Reply positions is added, and internal citations omitted.

57 (claim 2). This claim language, therefore, allows for the virtual volumes to be presented to the client devices independently of the physical storage. The specification also explains that physical storage may or may not even be assigned to the virtual volume when it is presented to the client or host device. *See, e.g., id.* at 1:67-2:4 (“[H]ost devices that have been assigned these NMVs [network managed volumes] perceive ownership of the entire allocated volume, ***without requiring a present allocation of physical storage space*** having the same characteristics, ***but with seamless introduction of physical resources as needed.***”).

Scale’s proposed construction is also consistent with the purpose of the invention. The patent explains that a problem that leads to poor asset use in information technology systems is an operating system’s expectation to “exclusively ‘own’ devices attached to them.” *Id.* at 1:10-12. The patent goes on to explain that “[s]ome conventional systems provide ‘virtual local storage.’ These systems typically implement hard mappings or other mechanisms that appropriately route requests to access the remote storage device.” *Id.* at 1:21-24. To address problems caused by hard mappings and poor asset allocation, the ’235 patent purports to introduce network managed volumes that are “virtual volumes that enable simplified and more efficient use of information technology assets by ***allocating physical disk drives as needed.***” *Id.* at 1:57-60. The allocation of physical storage to a “virtual volume” is dynamic. Indeed, a purported benefit of the invention is that it allows “large volumes to be created ***without immediately requiring any physical disk space.***” *Id.* at 2:38-40. This means that “[t]he host device does not need to necessarily be concerned with the type of physical storage devices that are actually managed by the SAN [storage area network], as the SDS [storage domain server] merely presents a virtual volume to the host device.” *Id.* at 2:60-63.

Moreover, DataCore’s own description of the alleged invention in its opening claim construction brief concedes that the virtual volumes are independent of the underlying physical storage. DataCore writes: “Although the virtual volumes are presented as large disks, they do not necessarily have the same amount of physical storage allocated to them at all times. Instead, physical resources are allocated to virtual volumes *based upon immediate need*.” *Supra* at 4. Therefore, before the client device has any need for storage, it only sees a virtual volume that is completely independent from a physical storage. And the independence of “virtual volumes” from physical storage is what allows for the purported benefits of the invention. *See, e.g.*, ’235 patent, at 1:67-2:4. Thus, construing “virtual volumes” as “virtual disk that is independent from the underlying physical storage” is consistent with the purpose of the invention which allegedly improved upon prior art systems that tied virtual volumes to physical storage and did not “dynamically” add physical storage as needed. Although DataCore claims that Scale’s construction attempts to improperly import limitations from the specification, Scale’s construction that the “virtual disk” is “independent from the physical storage” is not a limitation from the specification—it is *the invention*.

DataCore’s proposed construction is “virtual disk” and does nothing to clarify the term. In addition, DataCore’s argument that Scale’s construction reads out an embodiment is also incorrect. *Supra* at 6-7 (quoting ’235 patent, at 1:60-66). The statement DataCore relies on from the Summary of the Invention is preceded by a statement that DataCore neglects to quote; it states: “The network managed volumes of the present invention are virtual volumes that enable simplified and more efficient use of information technology assets by allocating physical disc drives *as needed*.” ’235 patent, at 1:57-60. The embodiment, when read as a whole, is consistent with Scale’s construction because it explains that physical storage can be assigned to the virtual

volumes, but that the two are independent from one another because physical storage is allocated to the virtual volumes “as needed.” In addition, the patent explains that “[t]he storage pool is not a separate physical entity, but is a *logical unit*” meaning that virtual volumes and physical disks can both be associated with a storage pool while being independent from one another. *Id.* at 4:28-30. That the virtual volumes are independent from the physical storage in Scale’s construction does not contradict that there is a correlation between the two.

Scale’s proposed construction is correct because it based on the intrinsic record and consistent with the purpose of the alleged invention.

3. Plaintiff’s Reply Position

Plaintiff’s Construction	Defendant’s Construction
Plain and ordinary meaning, which is “virtual disk”	“virtual disk that is independent from the underlying physical storage”

DataCore’s proposed construction is in line with the plain meaning of the term “virtual volume.” As explained in DataCore’s Opening Brief, the patent specification equates “virtual volume” with “virtual disk,” indicating that the two terms can be used interchangeably. (’235 Patent at 4:22–23 (“virtual volume may also be referred to as a virtual disk.”).) DataCore’s straightforward construction accurately captures the scope of the claim and is consistent with the specification.

Defendant’s construction adds unnecessary and, in some instances, superfluous limitations. As Defendant acknowledges, “Claim 1 states in part: ‘wherein the virtual volumes are presented to the client devices *without requiring the assigned physical storage devices* to have been previously presented to any of the client devices[.]’” (*Supra* at 7 (citing ’235 patent, at 14:20-23 (claim 1)).) Inserting Defendant’s proposed construction would render this limitation redundant:

wherein the [virtual disk that is *independent from the underlying physical storage*] are presented to the client devices *without requiring the assigned physical storage devices* to have been previously presented to any of the client devices

(*Id.* (emphasis added)) See *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1340 (Fed. Cir. 2016) (an interpretation that would render claim language to be “superfluous” is “disfavored”); *Power Mosfet Techs., L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004) (“[I]nterpretations that render some portion of the claim language superfluous are disfavored.”). Defendant makes much ado about the purpose of the invention (*supra* at 8-9), but as indicated above, the claim language accurately captures the inventors’ intent. DataCore’s proposed construction provides consistency with the plain meaning of the term without rendering other portions of the claim meaningless. See *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”). Accordingly, DataCore respectfully requests that the Court construe “virtual volumes” according to its plain and ordinary meaning, which is “virtual disk.”

4. Defendant’s Sur-Reply Position

DataCore takes conflicting positions between its Opening Brief and Reply Brief for this term. DataCore first argued that Scale’s construction is incorrect because it “improperly import[s] limitations from the specification into the claim language.” *Supra* at 6. DataCore argued that it would be wrong to “limit[]the ‘virtual volume’ to be ‘independent from the underlying physical storage’” because “[t]he plain claim language has no limitation, and the specification and prosecution history of the ’235 Patent offer no support, requiring that the ‘virtual volumes’ be ‘independent from the underlying physical storage.’” *Id.*

In contrast, DataCore’s Reply alleges that Scale’s construction adds “superfluous limitations” to the claim and renders the following limitation redundant: “wherein the virtual

volumes are presented to the client devices *without requiring the assigned physical storage devices* to have been previously presented to any of the client devices[.]” *Supra* at 10 (italics in original). DataCore thus now concedes that the claims *do* require that the “virtual volumes” are “independent from the underlying physical storage.” This is the opposite of DataCore’s original argument that “[t]he plain claim language has no [such] limitation.” *See Supra* at 6.

Moreover, DataCore’s argument that Scale’s construction renders a limitation of the claim superfluous is incorrect. The limitation DataCore relies on recites that it is not required for the “*the assigned physical storage devices* to have been previously presented to any of the client devices[.]” *Supra* at 10 (quoting ’235 patent, 14:20-23). Scale’s construction defines the relationship between virtual disks and the physical storage and clarifies that they are independent. But the limitation DataCore claims is rendered superfluous recites whether the *physical storage devices* have been previously presented to any of the client devices. While this limitation supports Scale’s construction, the two are not the same such that one would render the other superfluous.

Additionally, the cases DataCore relies on are distinguishable. For example, in *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, the Court rejected a construction of “gather or receive” because “allowing ‘collection’ to mean ‘receive’ would render ‘collection’ entirely superfluous” as “that function is clearly contemplated by the surrounding claim language.” 811 F.3d 1334, 1340 (Fed. Cir. 2016). Similarly, in *Merck & Co. v. Teva Pharms. USA, Inc.*, certain claim terms would become “excess verbiage” if the proposed construction were adopted. 395 F.3d 1364, 1372 (Fed. Cir. 2005). No portion of ’235 patent claims 2 and 3, however, becomes redundant if Scale’s construction is adopted. And as the Federal Circuit explained in another case DataCore cites—*Power Mosfet Techs., L.L.C. v. Siemens AG*—the rule “that there is ‘a difference in meaning and scope when different words or phrases are used in separate claims’ . . . is not inflexible” and “where

neither the plain meaning nor the patent itself commands a difference in scope between two terms, they may be construed identically.” 378 F.3d 1396, 1409-10 (Fed. Cir. 2004).

B. “intentionally exceeds”

1. Plaintiff’s Opening Position

Plaintiff’s Construction	Defendant’s Construction
Plain and ordinary meaning, which is “designed specifically to exceed”	Indefinite Alternative, if not found indefinite: “Intentionally exceeds” requires more than capability of being able to handle “potential happenstance of over-commitment” of resources

The Asserted Claims recite “presenting [] virtual volumes to one or more client devices, wherein the virtual volumes have respective logical sizes, and the sum of the logical sizes for the virtual volumes *intentionally exceeds* the total logical size of the assigned physical storage devices.” (’235 Patent at cls. 1, 2.) The plain meaning should control for the term “intentionally exceeds,” that is “designed specifically to exceed.”

Defendant proposes that the limitation “intentionally exceeds” is indefinite, or in the alternative, should be construed to require more than capability of being able to handle “potential happenstance of over-commitment” of resources. The burden rests on Defendant to prove clearly and convincingly that the term is indefinite under Section 112. *See, e.g., Sonix Tech. Co. v. Publ’n Int’l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017) (“Indefiniteness must be proven by clear and convincing evidence.”) (citing *Teva Pharms. v. Sandoz, Inc.*, 789 F.3d 1335, 1345 (Fed. Cir. 2015)). Defendant fails to meet this burden as Defendant to date has only provided a conclusory *three-sentence* statement of their position without support of *any evidence* in its December Invalidity Contentions. Moreover, Defendant’s alternative construction is not supported by the intrinsic record and is itself illogical.

Nonetheless, DataCore provides the following preliminary statement in the absence of any proffered evidence from Defendant and will respond if and when Defendant advances a *prima facie* showing under its burden of proof. (See, Ex. A, Defendant’s Invalidity Contentions dated December 1, 2022 at 8.)

a) “intentionally exceeds” is not indefinite and the plain meaning, as disclosed in the specification and prosecution history, should control

The Supreme Court has held that “a patent must be precise enough to afford clear notice of what is claimed, thereby ‘appris[ing] the public of what is still open to them.’” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014) (alteration in original, quotation omitted). A “patent is invalid for indefiniteness if its claims, read in light of the specification . . . and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Id.* at 2124. Here, the claims are clear on their face and there is no uncertainty as to their scope. “Intentionally exceeds” means just that: “designed specifically to exceed.” (See Ex. B, Webster’s 9th New Collegiate Dictionary (9th Ed. 1990) at 629 (defining “intentional” as “done by intention or design”).)

The meaning of this term is clear when viewed in light of the patent specification, and in particular, the stated purpose of the ’235 Patent. As explained in the specification, one of the advantages of the ’235 Patent is that “host devices . . . perceive ownership of the entire allocated [virtual] volume, without requiring a present allocation of physical storage space having the same characteristics” (*i.e.*, without requiring the logical size of the virtual volume to equal the logical size of the allocated physical storage space). (’235 Patent at 1:67–2:4.) Indeed, over-commitment is preferable. As explained above, the ’235 Patent discloses defining a storage pool, to which physical resources are added, and from which virtual volumes are created and presented to the host device. (’235 Patent at 1:62–66.) It is common that multiple virtual volumes are associated with

a single storage pool. (*Id.* at 2:25–29.) Furthermore, it is preferable that “virtual volumes have default sizes that *match the entire size of the storage pool.*” (*Id.* at 5:58–60 (emphasis added).) This means that for any given storage pool having more than one associated virtual volume, the total logical space of all virtual volumes, as presented to the client devices, exceeds the total logical space of the storage pool itself and advantageously, the logical space of the physical storage associated with that storage pool. Based on the extensive disclosure throughout the specification, a person of ordinary skill would understand “the scope of the invention with reasonable certainty” and that the claim term is not indefinite. *Nautilus*, 572 U.S. at 910.

The applicant added further clarity to this functionality during prosecution of the application that resulted in the ’235 Patent. In particular, the applicant added the “intentionally exceeds” claim language in an Amendment, dated July 21, 2010, in Response to an Office Action. (’235 File History at DC00000612-0626.) In the accompanying remarks, the applicant distinguished the claimed invention from references that specifically “avoid[] over-commitment.” (*Id.* at DC00000629.) As explained by the applicant, “presenting virtual volumes to one or more client devices . . . where the sum of the logical sizes for the virtual volumes intentionally exceeds the total logical size of the assigned physical storage devices . . . is clearly distinct from a potential happenstance of over-commitment that might occur in prior art systems.” (*Id.*) In other words, in a claimed system, the logical size of the virtual volumes presented to the client device is designed specifically to exceed the logical size of the assigned physical storage devices.

Indeed, because the “intentionally exceeds” language was added as part of an amendment to the claims, the Patent Office explicitly considered this language and determined that it was patentable. As part of its examination, the Patent Office considers not only issues of novelty and non-obviousness, but also ensures that the claims meet all requirements in, *inter alia*, 35 U.S.C.

§ 112, including definiteness. *See, e.g.*, Manual of Patent Examining Procedure § 701 (“The Director shall cause an examination to be made of the application and the alleged new invention; and if on such examination it appears that the applicant is entitled to a patent under the law, the Director shall issue a patent therefor. The main conditions precedent to the grant of a patent to an applicant are set forth in 35 U.S.C. 101, 102, 103, and 112.”). In explicitly considering the language “intentionally exceeds” as part of the applicant’s amendment, the examiner was additionally tasked with determining whether such language was sufficiently definite to meet the requirements of § 112 when considering the amended claim language, which the examiner did. This approval by the Patent Office carries significant weight in favor of rejecting Defendant’s argument of indefiniteness. *See Nature Simulation Sys. Inc. v. Autodesk, Inc.*, 50 F.4th 1358, 1366–68 (Fed. Cir. 2022) (evaluating the examiner’s analysis of indefiniteness in its reversal of a district court’s finding that certain claims are indefinite); *see also Sonix Tech.*, 844 F.3d at 1379–80 (reversing the finding that the claim scope was uncertain where “the USPTO did not express any uncertainty as to the scope”); *Nat’l Recovery Techs., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1195 (Fed. Cir. 1999) (“Every patent is presumed valid. The presumption of validity includes a presumption that the patent complies with § 112.”).

b) Defendant’s alternative construction is nonsensical

Defendant’s alternate construction is inappropriate for two reasons: first, the proposed construction finds no basis in the intrinsic record, and second, the proposed construction is illogical. Despite parroting the applicant’s language in the amendment discussed above (*i.e.*, “potential happenstance of over-commitment”), the remainder of Defendant’s construction is wholly divorced from the specification, claims, and prosecution history. Such a construction is inconsistent with the intrinsic record and cannot stand. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1323–24 (Fed. Cir. 2005).

Furthermore, it is at best unclear what is meant by Defendant’s use of “more than capability.” The ’235 Patent describes systems and methods for managing virtual volumes in a storage area network. (’235 Patent at 1:6–8.) Yet Defendant’s proposed construction begs the question, what is a system that is *more than capable* of handling the potential happenstance of over-commitment? Such a construction provides no clarity to the trier of fact as to the scope of the claims and should therefore be rejected. *See O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008) (“Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement.”).

2. Defendant’s Answering Position

Term	DataCore’s Construction	Scale’s Construction
“intentionally exceeds” ’235 patent, claims 1, 2	Plain and ordinary meaning, which is “designed specifically to exceed”	Indefinite Alternative, if not found indefinite: “Intentionally exceeds” requires more than [the] capability of being able to handle “potential happenstance of over-commitment” of resources ³

The phrase “intentionally exceeds” is indefinite because it fails to inform a person of ordinary skill in the art (“POSITA”) of the scope of the alleged invention.

“[T]he primary purpose of the definiteness requirement is to ensure that the claims are written in such a way that they give notice to the public of the extent of the legal protection afforded by the patent, so that interested members of the public, *e.g.*, competitors of the patent owner, can determine whether or not they infringe.” *Omega Flex, Inc. v. Ward Mfg., LLC*, C.A. No. 18-1004-

³ Scale’s original proposed alternative construction inadvertently left out “the” prior to “capability of being able to handle ‘potential happenstance of over-commitment’ of resources.”

MN, 2019 WL 3281270, at *2 (D. Del. July 19, 2019) (quoting *All Dental Prodx, LLC v. Advantage Dental Prods., Inc.*, 309 F.3d 774, 779-80 (Fed. Cir. 2002)) (quotation marks omitted). “[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014); *see also Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370 (Fed. Cir. 2014) (to be definite, claim language must provide “enough certainty to one of skill in the art when read in the context of the invention.”).

Here, as used in claims 1 and 2 of the ’235 patent, the phrase “intentionally exceeds” has no precise meaning, and is not limited to, or by, any particular feature or characteristic of the technology. The term is recited in the claims as part of the phrase “the sum of the logical sizes for the virtual volumes *intentionally exceeds* the total logical size of the assigned physical storage devices.” ’235 patent, at 14:17-19 (claim 1); *see also id.* at 14:51-53 (claim 2). Contrary to DataCore’s assertions, the patent’s specification does not make the meaning of this term “clear.” *See supra* at 14-15. There is no reference in the specification to how or why the sum of the logical sizes for the virtual volumes *intentionally exceeds* the total logical size of the assigned physical storage devices. Not only does the patent specification not use the word “intentionally,” it does not disclose this concept as part of any discussion of exceeding limits. *See, e.g.*, ’235 patent, at 12:38-13:5. The only discussion in the specification about exceeding available resources is described as being unintentional in the context of *monitoring* the consumption of the physical resources and *determining* when a threshold has been exceeded. *Id.* at 12:38-40; *see also id.* at 12:48-51 (an alarm indicates “[w]hen it is determined that the amount of consumed physical resources exceeds a threshold[.]”). But monitoring and determining when a threshold is exceeded

is not intentional—it is unintentional. In fact, when the Applicant added the term “intentionally” to the claims, the Applicant’s accompanying remarks did not identify any support for that amendment from the specification; the Applicant only made the conclusory statement that “[t]hese amendments add no new matter.” *See* D.I. 41, Ex. B at DC00000612 (claim 1), DC00000616 (claim 2), DC00000627 (Applicant’s Remarks). Because “intentionally exceeds” does not identify the scope of the alleged invention in any manner, let alone in a sufficiently definite way to allow a POSITA to be informed of its scope with “reasonable certainty,” the term is indefinite. *Interval Licensing LLC*, 766 at F.3d at 1374 (Holding claims invalid for indefiniteness because they recite a phrase that “when viewed in light of the specification and prosecution history, fails to inform those skilled in the art about the scope of the invention with reasonable certainty.”).

Notwithstanding the above, should the Court determine that the phrase passes the definiteness requirement, “intentionally exceeds” should be construed as requiring more than the capability of being able to handle “potential happenstance of over-commitment” of resources because this is how the patentee described the term in prosecution. *See, e.g.*, D.I. 41, Ex. B at DC00000629. In its attempt to overcome objections based on the prior art, the patentee consistently explained that the “intentionally exceeds” claim limitation is “clearly distinct from a ***potential happenstance of over-commitment*** that might occur in prior art systems.” *See id.*, Ex. B at DC00000459; *see also id.* at DC00000485-486, DC00000524, DC00000569, DC00000629. According to the patentee, the prior art systems were capable of handling a “potential happenstance of over-commitment” of resources. *Id.* Given the patentee’s representation to the Patent Office that the “intentionally exceeds” limitation is “clearly distinct” from the ability to handle a “potential happenstance of over-commitment” of resources, this means that the claim requires more than “the capability of being able to handle” such potential over-commitment. “Arguments

and amendments made during the prosecution of a patent application and other aspects of the prosecution history, as well as the specification and other claims, must be examined to determine the meaning of terms in the claims.” *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995). In particular, “the prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance.” *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985); *see also Biogen Idec, Inc. v. GlaxoSmithKline LLC*, 713 F.3d 1090, 1095 (Fed. Cir. 2013) (“Beyond the notice function and reliance-based aspects of a patent’s prosecution history, it provides evidence of how the [PTO] and the inventor understood the patent.”).

DataCore’s proposed construction, which overlooks the statements made by the Applicant to the Patent Office to obtain the patent, is incorrect. DataCore also relies on a dictionary to argue that the meaning of “intentionally exceeds” is clear. *Supra* at 14. But while a court may look to extrinsic evidence such as dictionaries, the intrinsic record, which includes how the patentee described the invention to the Patent Office during prosecution, controls. *See Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1326 (Fed. Cir. 2002) (“[T]he prosecution history may demonstrate that the patentee intended to deviate from a term’s ordinary and accustomed meaning.”). The Federal Circuit has long held that dictionary definitions are of secondary importance when construing claims and that the intrinsic evidence, which includes the claim language, patent specification, and prosecution history, should be consulted first. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005).

Therefore, should the Court determine that “intentionally exceeds” meets the definiteness requirement, Scale’s proposed construction should be adopted.

3. Plaintiff's Reply Position

Plaintiff's Construction	Defendant's Construction
Plain and ordinary meaning, which is "designed specifically to exceed"	Indefinite Alternative, if not found indefinite: "Intentionally exceeds" requires more than [the] capability of being able to handle "potential happenstance of over-commitment" of resources

The phrase "intentionally exceeds" is not indefinite and should be afforded its plain meaning, consistent with the intrinsic record. Defendant has failed to establish that a person of ordinary skill in the art ("POSITA") would fail to understand the scope of the invention, let alone that the asserted claims are clearly and convincingly indefinite under Section 112. *See Sonix Tech. Co. v. Publ'n Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

Definiteness is determined from the lens of one skilled in the art. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014) ("a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, *those skilled in the art* about the scope of the invention" (emphasis added)). Defendant's primary argument that one of skill in the art would not understand the scope of this term is that "the patent specification [does] not use the word 'intentionally.'" (*Supra* at 18.) Yet, Defendant has not provided any evidence to suggest that one of skill in the art would not understand the scope and plain meaning of "intentionally." Not only is "intentionally" a commonly used and widely understood term, but the patent specification provides an example of this "intentional" functionality. The specification explains that "the physical storage devices that are placed into a storage pool do not need to add up to the size of the storage pool, even collectively. For example, a pool having a 2 terabyte logical size can be used to define several

NMVs that are each 2 terabytes in size, even if the total amount of physical disk storage space assigned to that pool is less than 2 terabytes.” (’235 Patent at 2:19-25.) In other words, if there are 6 NMVs associated with a storage pool, each having 2 terabytes of logical size, the total logical size is 12 terabytes. In this scenario, the specification explains that the total amount of physical disk storage space can still be less than 2 terabytes. (*See id.*; Ex. D, Alexander Decl., ¶ 14.)

Defendant additionally asserts that “monitoring and determining when a threshold is exceeded is not intentional—it is unintentional.” (*Supra* at 18-19.) But indeed, the opposite is true. In a system where presenting virtual volumes to one or more client devices where the sum of the logical sizes for the virtual volumes intentionally exceeds the total logical size of the assigned physical storage devices (*i.e.*, overcommitment of physical resources) is allowed, monitoring physical resources and alerting administrators to the fact that more physical resources are or will soon be needed is even more important than a system in which overcommitment is not allowed. In a system where overcommitment is not allowed, such monitoring would be less important because there would never be a scenario where a virtual disk would be without a corresponding physical resource. Conversely, where a system is overcommitted, if alerts are not set, physical resources could be exhausted prior to filling all virtual disk space. As such, the specification provides an example where alarms are set at various thresholds (*e.g.*, 80% of physical storage space used). (*See* ’235 Patent at 12:25-62; Ex. D, Alexander Decl., ¶ 15.) These examples demonstrate that a POSITA would understand the term “intentionally exceeds” to have its plain meaning, which is “designed specifically to exceed.” (Ex. D, Alexander Decl., ¶ 16.)

Rather than accept the plain meaning of the term, Defendant hedges with an overly narrow alternative construction for the term “intentionally exceeds.” Defendant effectively equates the “potential happenstance of over-commitment” with “the capability of being able to handle” over

commitment and suggests that still more is needed. (*See supra* at 19-20.) The two terms, however, are not equivalent. In distinguishing the “potential happenstance of over-commitment” the applicant indicated only that overcommitment is an intended feature of the claims. In other words, the system presents virtual volumes to one or more client devices, wherein the virtual volumes have respective logical sizes, and the sum of the logical sizes for the virtual volumes is designed specifically to exceed the total logical size of the assigned physical storage devices. (*See* ’235 Patent at cls. 1, 2.) Accordingly, DataCore respectfully requests that the Court find that the term “intentionally exceeds” is not indefinite and construe it according to its plain and ordinary meaning, which is “designed specifically to exceed.”

4. Defendant’s Sur-Reply Position

DataCore relies on a dictionary definition and argues that because “intentionally” is a “commonly used and widely understood term,” the claim term “intentionally exceeds” is not indefinite. *Supra* at 14; *id.* at 21. DataCore applies the wrong standard. The question is not whether the claim term standing alone can be defined. Rather, the Federal Circuit has held that the claim term must be “read in light of the specification delineating the patent.” *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014) (“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”).

As Scale explained in its Answering Brief, the scope of this term is uncertain in view of the intrinsic record. *See also* Ex. E, Declaration of Kevin Almeroth (“Almeroth Decl.”), ¶¶ 20-25, 33. On the one hand, the applicant told the patent office that “intentionally exceeds” is “clearly distinct from a *potential happenstance of over-commitment* that might occur in prior art systems.” *supra* at 19 (quoting D.I. 41, Ex. B at DC00000459). Yet, the specification only describes scenarios where there is a potential happenstance of over-commitment. For example, the patent

discusses monitoring the consumption of resources and determining when a threshold has been exceeded. *See supra* at 18 (quoting ’235 patent at 12:38-40, 12:48-51). If a system is “designed specifically to exceed” as DataCore construes the term, there would be no need for monitoring because the threshold always would be exceeded. Almeroth Decl., ¶¶ 23, 31.

Similarly, the embodiment DataCore relies on in its Reply is another example of a potential happenstance of over-commitment. *Supra* at 21-22 (quoting ’235 patent, 2:19-25). In that embodiment, “the physical storage devices that are placed into a storage pool ***do not need to add up to the size of the storage pool***, even collectively. . . .” *Id.* Again, this describes a potential over-commitment — “do not need to add up to the size of the storage pool” means that the logical size of the storage pool can be the same as the physical storage space but it can also be different. If the system was “designed specifically to exceed” as DataCore construes the term, then it would never add up to the size of the storage pool. Because the specification and the file history provide conflicting disclosures about the scope of the term “intentionally exceeds,” its scope is not reasonably certain, and the term is therefore indefinite. Almeroth Decl., ¶¶ 20-25, 33.

As Scale showed in its Answering Brief, if the Court finds that this term is not indefinite, it should adopt Scale’s proposed construction based on the applicant’s statements of disavowal during the prosecution. *Supra* at 19-20; *see also* Almeroth Decl. ¶¶ 26-27. DataCore does not refute that the applicant disclaimed scope during prosecution. Instead, it attempts to equate what the applicant expressly said to the patent office with DataCore’s proposed construction. *Supra* at 22-23. The two, however, are not the same. DataCore’s proposed construction is based on a dictionary definition of the word “intentionally” and does not take into account the applicant’s prosecution arguments. Almeroth Decl. ¶¶ 26-32.

C. “logical size(s)”

1. Plaintiff’s Opening Position

Plaintiff’s Construction	Defendant’s Construction
Plain and ordinary meaning, which is “amount of storage space”	“total amount of storage space corresponding to the storage pool”

The claim language and specification support DataCore’s plain reading of the term “logical size” to simply mean an “amount of storage space.” Defendant’s construction is incorrect because it would render the claim language inoperable and thus violates the standard set forth in *Phillips* that terms should be used consistently throughout the claims. *See Phillips*, 415 F.3d at 1314.

The term “logical size(s)” appears four times throughout the Asserted Claims and in each instance is used in a different context. For example, Claim 1 recites, *inter alia*:

A method for managing virtual volumes, the method comprising:

defining a storage pool to which one or more physical storage devices is assigned by selection from a plurality of available physical storage devices, the assigned physical storage devices having a total logical size;

defining virtual volumes that are associated to the storage pool;

presenting the virtual volumes to one or more client devices, wherein the virtual volumes have respective logical sizes, and the sum of the logical sizes for the virtual volumes intentionally exceeds the total logical size of the assigned physical storage devices, and wherein the virtual volumes are presented to the client devices without requiring the assigned physical storage devices to have been previously presented to any of the client devices

(’235 Patent at claim 1 (emphasis added).) In the first instance, logical size is associated with the “assigned physical storage devices”; the second is associated with “virtual volumes”; the third with the “sum of the . . . virtual volumes”; and the fourth with the “total . . . of the assigned physical storage devices.” (*Id.*) Yet Defendant would tie all of these uses to the total amount of space in the storage pool. Replacing the term Defendant’s proposed construction highlights this disconnect:

A method for managing virtual volumes, the method comprising:

defining a storage pool to which one or more physical storage devices is assigned by selection from a plurality of available physical storage devices, the assigned physical storage devices having a total **total amount of storage space corresponding to the storage pool**;

defining virtual volumes that are associated to the storage pool;

presenting the virtual volumes to one or more client devices, wherein the virtual volumes have respective **total amount of storage space corresponding to the storage pool**, and the sum of the **total amount of storage space corresponding to the storage pool** for the virtual volumes intentionally exceeds the total **total amount of storage space corresponding to the storage pool** of the assigned physical storage devices, and wherein the virtual volumes are presented to the client devices without requiring the assigned physical storage devices to have been previously presented to any of the client devices

Such an illogical construction cannot be correct. *See Phillips*, 415 F.3d at 1314 (“Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.”). Conversely, DataCore’s proposed construction is consistent with the inventor’s intended meaning and should be adopted. (*See* ’235 Patent at 2:8–12; 2:18–29.)

2. Defendant’s Answering Position

Term	DataCore’s Construction	Scale’s Construction
“logical size(s)” ’235 patent, claims 1, 2	Plain and ordinary meaning, which is “amount of storage space”	“total amount of storage space corresponding to the storage pool”

Scale’s proposed construction that “logical size(s)” means the “total amount of storage space corresponding to the storage pool” is supported directly by the intrinsic record, specifically the description of the invention in the patent. *See, e.g., Thorner v. Sony Comput. Ent. Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012) (“[T]he inventor’s written description of the invention, for example, is relevant and controlling insofar as it provides *clear lexicography*[.]”) (emphasis in original).

Scale’s proposed construction is consistent with the purpose of the invention: to allocate virtual volumes of storage to host devices and when the devices need storage, to associate those virtual volumes with physical storage that can be used by the host devices. The patent specifically states that as a property of a storage pool, the “logical size” is “the total space corresponding to the pool.” ’235 patent, at 2:8-11 (“The functionality allows the definition of a storage pool having a number of pool properties including a *logical size, which represents the total amount of storage space corresponding to the pool.*”); *see also id.* at 2:12-29. Moreover, the patent explains that “[t]he storage pool is not a separate physical entity, but is a logical unit[.]” *Id.* at 4:28-30. Scale’s construction, which is based on the description of the invention in the patent specification, clarifies that the “size” is the size of the storage pool.

DataCore’s proposed construction—“amount of storage space”—is incorrect because it is based on only a portion of the description of the term in the patent and excludes the explanation that the storage space corresponds to the storage pool. DataCore incorrectly argues that Scale’s construction would render the claim language inoperable and that the claims use the term “logical size” in four different contexts. *Supra* at 25. There is but one context in which the term is used and that is with respect to the storage pool because the virtual volumes are defined from the storage pool and the physical storage devices are assigned to the storage pool. *See, e.g.,* ’235 patent, at 14:9-23 (claim 1); *see also id.* at 14:43-57 (claim 2). In addition, there is a strong presumption that the same term has the same meaning throughout the patent such that the term “logical size” would not have four different meanings within the same claim as DataCore suggests. *See, e.g., Scripps Research Inst. v. Illumina, Inc.*, 782 F. App’x 1018, 1023 (Fed. Cir. 2019).

3. Plaintiff's Reply Position

Plaintiff's Construction	Defendant's Construction
Plain and ordinary meaning, which is "amount of storage space"	"total amount of storage space corresponding to the storage pool"

The claim language and specification support DataCore's plain reading of the term "logical size" to simply mean an "amount of storage space." Defendant seems to agree that the same term should have the same meaning throughout a patent (*supra* at 27) but overlooks the fact that the claim language recites the "logical size(s)" of four different claim elements: (1) the logical size of "assigned physical storage devices"; (2) the logical sizes of "the virtual volumes"; (3) the logical sizes of the "sum of the . . . virtual volumes"; and (4) the logical size of the "total . . . assigned physical storage devices." ('235 Patent at claim 1; *see supra* at 25-26.) Thus, any construction of "logical size(s)" must apply to each use of the term. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) ("claim terms are normally used consistently throughout the patent"); *id.* ("use of a term within the claim provides a firm basis for construing the term"). Defendant's construction is improper because it ties the storage space of each of these individual claim elements to a single storage amount—the total amount of storage space corresponding to the storage pool.

Furthermore, to the extent such "logical size(s)" are associated with the storage pool, the claim language itself dictates as much. For example, claim 1 recites, "defining *a storage pool to which one or more physical storage devices is assigned* . . . the assigned physical storage devices having a total logical size." ('235 Patent at cl. 1 (emphasis added).) Adding a limitation that the logical size be the total amount of storage space corresponding to the storage pool would render superfluous portions of the claim language, a practice that should be avoided. *Power Mosfet Techs.*, 378 F.3d at 1410. Accordingly, DataCore respectfully requests that the Court construe "logical size(s)" according to its plain and ordinary meaning, which is "amount of storage space."

4. Defendant's Sur-Reply Position

Scale's proposed construction that "logical size(s)" means the "total amount of storage space corresponding to the storage pool" is directly supported by the intrinsic record, specifically the description of the invention in the patent. *Supra* at 27 (quoting '235 patent, at 2:8-11). DataCore does not refute this. Instead, it alleges that Scale's construction makes another portion of the claim superfluous. *Supra* at 28. DataCore, however, fails to show that any portion of the claim is made superfluous if Scale's construction is adopted.

The limitation DataCore relies on demonstrates that the "assigned physical storage devices hav[e] a total logical size" and that the "physical storage devices" are assigned to "a storage pool." *Id.* Not only does this support Scale's construction, it does not result in any portion of the claim being rendered superfluous. As Scale explained in its Answering Brief, the physical devices are assigned to the storage pool and the virtual volumes are defined from that storage pool. *Supra* at 27. That is, the storage pool is associated with both the physical and virtual elements of the claim. This also confirms that Scale's construction is correct as it applies to each instance of "logical size" recited in the claim—whether it is the "logical size" of the "virtual volumes" or the "assigned physical storage devices," or their sums or totals. *Id.* at 8-9.

D. "physical resources"

1. Plaintiff's Opening Position

Plaintiff's Construction	Defendant's Construction
Plain and ordinary meaning, which is "physical storage"	"available physical storage devices"

DataCore's proposed construction should be adopted because it accurately captures the scope of the claim without excluding disclosed embodiments found in the intrinsic record. Defendant's proposed construction, however, is contrary to the claim language and specification, and therefore should be rejected. The crux of the parties' dispute is whether physical resources

are limited to “physical storage devices,” as advanced by Defendant, or to any “physical storage,” which is consistent with the specification.

Defendant’s proposed construction requiring that physical resources are limited to “storage devices” is inconsistent with the specification and claim language. In particular, limiting “physical resources” to include only “storage devices” would eliminate “physical chunks” from the scope of the term. Both the ’235 Patent specification and the Asserted Claims specifically refer to physical chunks as part of physical resources. As previewed in Section I.A.1, the specification explains that the storage pool is conceptually divided into a number of chunks, each having a certain chunk size. (’235 Patent at 6:13–17.) The virtual volumes that are assigned to each pool are variously mapped to those chunks. (*Id.*) In order to allocate storage resources on demand, the physical disks are divided into physical chunks that each have the chunk size. (*Id.* at 18–22.) As such, “[a] mapping is maintained between the *physical resources* [i.e., the physical chunks on the physical disks] and the virtual resources ([i.e.,] the storage pool and its [virtual volumes]).” Limiting “physical resources” to “storage devices” would effectively require that virtual volumes have a one-to-one mapping with physical storage devices, a concept that would defeat the stated utility of the ’235 Patent. (*See* ’235 Patent at 1:10–16, 2:38–47.)

Inclusion of “physical chunks” in the definition of “physical resources” is also consistent with the claim language of the Asserted Claims. Claim 1 recites, *inter alia*:

allocating physical chunks of the chunk size from the plurality of available chunks that are included in the storage pool to dynamically allocate physical resources to the virtual volumes on demand;

(’235 Patent at cl. 1.) In this context, “physical resources” refers back to allocation of “physical chunks.” As such, eliminating “physical chunks” from the scope of “physical resources” is contrary to the claim language.

Furthermore, as discussed below, “physical storage devices” is a term that is already used in both the Asserted Claims and certain unasserted dependent claims. Defining “physical resources” to include a subset of another defined term would add unnecessary confusion to the scope of the claim. *See Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006) (“[R]eading an additional limitation from a dependent claim into an independent claim would not only make that additional limitation superfluous, it might render the dependent claim invalid.”).

DataCore’s straightforward construction of “physical resources” most naturally aligns with the scope of the claim and should be adopted by the Court.

2. Defendant’s Answering Position

Term	DataCore’s Construction	Scale’s Construction
“physical resources” ,’235 patent, claims 1, 2	Plain and ordinary meaning, which is “physical storage”	“available physical storage” ⁴

The term “physical resources” should be construed as “available physical storage” consistent with the plain and ordinary meaning of the term. *See Renishaw*, 158 F.3d at 1250.

DataCore does not appear to dispute the inclusion of “available” in Scale’s proposed construction. Not only did DataCore fail to address this portion of Scale’s proposed construction in its opening brief, *see supra* at 29-31, DataCore’s proffered intrinsic evidence for this term supports Scale’s proposed construction. For example, DataCore cites to claim 1 of the ’235 patent, which recites “allocating physical chunks of the chunk size from the plurality of *available* chunks that are included in the storage pool to dynamically allocate physical physical resources to the

⁴ Scale originally proposed that “physical resources” be construed as “available physical storage devices.” In order to narrow the dispute between the parties, Scale has revised its construction to be “available physical storage.”

virtual volumes on demand.” *Id.* at 13 (quoting ’235 patent, claim 1). DataCore essentially acknowledges that the “physical resources” must be “available” in order to be allocated.

Moreover, the intrinsic evidence underscores the requirement that “physical resources” be “available.” Claims 1 and 2 recite that physical resources are dynamically allocated to the virtual volumes “on demand,” which necessarily means that the physical resources are available. ’235 patent, at 14:32-35 (claim 1: “dynamically allocate physical resources to the virtual volumes on demand”); *see also id.* at 14:66-15:2 (claim 2: same). The specification also emphasizes that the physical storage is available by explaining that “physical resources are allocated to NMVs based upon actual demand” and “the actual physical storage is not allocated until it is determined to be required.” *Id.* at 6:19-20, 12:31-34; *see also id.* at 6:13-28, 12:25-47. It follows from this that the physical storage is available; otherwise it could not be allocated on demand when it is required. Scale’s proposed construction, which is based on the intrinsic evidence, is correct and should be adopted.

3. Plaintiff’s Reply Position

Plaintiff’s Construction	Defendant’s Construction
Plain and ordinary meaning, which is “physical storage”	“available physical storage”

DataCore’s proposed construction should be adopted because it accurately captures the plain meaning of the term. Defendant’s proposed construction, however, remains improper because it again recites superfluous limitations that would render portions of the claim language meaningless. Defendant acknowledges that “claim 1 of the ’235 patent[] recites ‘allocating physical chunks of the chunk size from the plurality of *available* chunks that are included in the storage pool to dynamically allocate physical [] resources to the virtual volumes on demand’” (*Supra* at 31-32 (quoting ’235 Patent at cl. 1), yet still insists that physical resources need to be

construed as “available.” The inventors knew how to draft claims reciting “available” storage. (*See* ’235 Patent at cl. 1.) Where storage must be “available” the claims recite as much. Limiting physical resources to only those that are “available” would render portions of the claim language redundant, a practice that the Federal Circuit cautions against. *Power Mosfet Techs.*, 378 F.3d at 1410. Accordingly, DataCore respectfully requests that the Court construe “physical resources” according to its plain and ordinary meaning, which is “physical storage.”

4. Defendant’s Sur-Reply Position

The term “physical resources” should be construed as “available physical storage” consistent with the plain and ordinary meaning of the term. *Supra* at 31-32. DataCore only disputes the inclusion of the word “available” in Scale’s construction.

DataCore again takes conflicting positions. On the one hand, it argues that “available” should not be part of the construction because the inventors did not use the word “available” to describe the “physical resources.” *Supra* at 32-33. DataCore alleges that “[t]he inventors knew how to draft claims reciting ‘available’ storage” and “[w]here storage must be ‘available’ the claims recite as much.” *Id.* It cites to no authority, however, for rejecting a construction on this basis. On the other hand, DataCore argues that the inclusion of “available” in the construction “render[s] portions of the claim language redundant.” *Id.* With this, DataCore concedes that the claim *does* require that the “physical resources” are “available.” This supports Scale’s construction. DataCore’s redundancy argument, however, should be rejected because DataCore has not shown that any language in the claim would become superfluous if Scale’s construction is adopted.

DataCore alleges that the claim language reciting “available chunks” would become superfluous if Scale’s construction is adopted. *Id.* at 32. The “chunks” are related to the “physical resources” because the claim recites “allocating physical chunks of the chunk size from the

plurality of available chunks . . . to dynamically allocate physical [] resources to the virtual volumes on demand.” *Id.* (quoting ’235 patent, cl. 1). But “chunks” and “physical resources” are distinct claim terms, and construing “physical resources” as “available physical storage” does not render the “available chunks” language superfluous. DataCore’s argument is nonsensical and should be rejected.

E. “dynamically allocate”

1. Plaintiff’s Opening Position

Plaintiff’s Construction	Defendant’s Construction
Plain and ordinary meaning, which is “allocate based on immediate need”	“distribute based on actual demand”

The Court should adopt DataCore’s proposed construction because it is consistent with the plain meaning of the term “dynamically allocate,” as the term is used in the ’235 Patent specification. Conversely, Defendant’s proposed construction that “allocate” is equivalent to “distribute” finds no support in the intrinsic record.

DataCore’s proposed construction is consistent with a plain reading of the term “dynamically allocate” and is supported by the specification. The Asserted Claims recite “allocating physical chunks of the chunk size from the plurality of available chunks that are included in the storage pool to **dynamically allocate** physical resources to the virtual volumes on demand.” (’235 Patent at cl. 1. (emphasis added).) The ’235 Patent specification provides an example of this functionality, which is consistent with DataCore’s proposed construction:

The present invention dramatically increases storage capacity use by allowing large volumes to be created without immediately requiring any physical disk space. *When a host device writes to an NMV in accordance with the present invention, chunks of physical storage are allocated from a pool on demand to meet the immediate need.* The physical chunks are mapped to a chunk table for the storage pool, which allows coherent management of the virtual volume even with multiple NMVs, multiple physical storage devices, and/or multiple SDS.

(’235 Patent at 2:38–47.) The specification consistently refers to allocation based on the immediate needs of the system. (*See, e.g., id.* at 6:22–26 (“When need arises (e.g., a write operation to [a virtual volume] that requires more physical storage than is currently allocated to the [virtual volume]) a physical chunk is allocated to the storage pool (and thus the [virtual volume]).”).). This repeated use of “dynamic” with reference to “need” is not surprising, as it is consistent with the conventional meaning of the term at the time of filing. (*See, e.g.,* Ex. C, A. Freedman, *The Computer Desktop Encyclopedia* (1996) at 268 (“dynamic [r]efers to operations performed while the program is running. [For example, the] expression ‘buffers are dynamically created,’ means that space was created when actually needed, not reserved beforehand.”); *see also, id.* at “dynamic memory allocation”).)

Defendant’s proposed construction is not supported by the intrinsic record. For example, Defendant’s contention that “allocate” should be replaced with “distribute” finds no support in the specification (indeed, the word “distribute” appears nowhere in the specification). Furthermore, replacing “allocate” with “distribute” is inconsistent with the claim language itself. “Allocating” appears just two lines preceding “dynamically allocate” in the Asserted Claims (*compare* ’235 Patent at 14:32 *with* 14:34), yet Defendant has not proposed that “allocating” be replaced with “distributing.” Allocating is used throughout the specification and its meaning is clear. No substitution is necessary.

2. Defendant’s Answering Position

Term	DataCore’s Construction	Scale’s Construction
“dynamically allocate” ’235 patent, claims 1, 2	Plain and ordinary meaning, which is “allocate based on immediate need”	“distribute based on actual demand”

Scale’s construction should be adopted because it is based on the claim language and the intrinsic record. The term “dynamically allocate” appears in the limitation “allocating physical

chunks of the chunk size from the plurality of available chunks that are included in the storage pool to *dynamically allocate* physical resources to the virtual volumes *on demand*.” ’235 patent, at 14:32-35 (claim 1); *see also id.* at 14:66-15:2 (claim 2). The claim, therefore, clearly recites that the dynamic allocation occurs *based on demand*. There appears to be little or no dispute over this as both parties’ constructions state that the allocation is “based on” either a “need” or a “demand.” Where the parties disagree is whether this demand is “immediate” or “actual.”

Scale’s construction finds support throughout the patent. The patent consistently explains that the “physical resources are allocated to NMVs *based upon actual demand*.” ’235 patent, at 6:19-20; *see also id.* at 8:35-38 (“[P]hysical storage allocated to the NMV *on a need basis*, which substantially reduces necessary physical memory requirements to present relatively large NMVs to host devices.”); *id.* at 12:31-34 (“The term allocable is used, because, as described above, even where a physical disk has been designated to a storage pool, the actual physical storage is *not allocated until it is determined to be required*.”). That is, the specification clearly describes that the invention requires allocation when there is an actual demand or need, and Scale’s proposed construction is consistent with this disclosure. In fact, even the dictionary definition that DataCore relies on explains that “dynamically” creating buffers (a type of memory) means to create that space “when actually needed.” *Supra* at 34-35. In addition, the patent explains that the prior art system of allocation was wasteful and the invention was more efficient and improved upon the prior art by “allocating physical disk drives as needed.” ’235 patent, at 1:57-60.

By contrast, plaintiff’s construction—“allocate based on immediate need”—is based on a misreading of a single passage from the summary of the invention. That passage reads “[w]hen a host device writes to an NMV in accordance with the present invention, chunks of physical storage are allocated from a pool on demand to meet the immediate need.” *Supra* at 34 (quoting ’235

patent, at 2:38-47). There are at least two problems with the plaintiff's construction and reliance on this passage. First, the plaintiff is importing a limitation from the specification. Nowhere else does the specification or the claims discuss the concept of an "immediate need." Second, the plaintiff's construction is not even consistent with the passage it relies on from the specification. The passage says that the allocation is "on demand to meet the immediate need." '235 patent, at 2:43. That is, the allocation is done on demand with the goal being to meet the immediate need. It is not that the allocation is based on the immediate need. Moreover, the word "immediate" introduces a temporal limitation which makes the claim less clear and may render it indefinite. Plaintiff's proposed construction raises the question how soon does the system need to respond in order for the "immediate" limitation to be met?

Scale's construction, which is consistent with the claims and specification, should be adopted.

3. Plaintiff's Reply Position

Plaintiff's Construction	Defendant's Construction
Plain and ordinary meaning, which is "allocate based on immediate need"	"distribute based on actual demand"

The Court should adopt DataCore's proposed construction because it is consistent with the plain meaning of the term "dynamically allocate," which is "allocate based on immediate need." Defendant complains that DataCore's construction incorporates a temporal component, but this is consistent with the stated purposes of the patent—"increase[ing] storage capacity use by allowing large volumes to be created without *immediately* requiring any physical disk space." ('235 Patent at 2:38-40 (emphasis added).) In other words, it is advantageous to wait until the storage need is immediate before allocating.

The portions of the specification that Defendant identifies in its Answering Brief further support this reading. For example, Defendant cites to column 12 lines 31-34, which indicate that “[t]he term allocable is used, because, as described above, even where a physical disk has been designated to a storage pool, the actual physical storage is not allocated *until it is* determined to be *required*” and column 8 lines 35-38, which explains that “physical storage allocated to the NMV on a *need basis*, which substantially reduces necessary physical memory requirements to present relatively large NMVs to host devices.” (*Supra* at 36.) Both of these passages suggest a temporal component, in that physical storage is not allocated until needed.

This interpretation is also consistent with the plain meaning of the term, as used in the field at the time of the invention, despite Defendant’s contentions otherwise (*see id.*). Defendant seems to admit that “the dictionary definition that DataCore relies on explains that ‘dynamically’ creating buffers (a type of memory) means to create that space ‘*when actually needed.*’” (*Id.* (citing Ex. A) (emphasis added).) Again, this interpretation involves a temporal limitation tied to the need for storage space. Accordingly, DataCore respectfully requests that the Court construe “dynamically allocate” according to its plain and ordinary meaning, which is “allocate based on immediate need.”

4. Defendant’s Sur-Reply Position

As Scale previously explained, the parties appear to be largely in agreement on the construction of “dynamically allocate.” In fact, DataCore does not dispute any portion of Scale’s construction. It only argues that its construction, including that the need be “immediate,” should be adopted instead. DataCore’s argument fails. DataCore cites to portions of the specification that explain physical storage is allocated “on a need basis” (*id.* at 8:35-38) and not “until it is determined to be required” (’235 patent at 12:31-34). *Supra* at 37-38. But there is no dispute that physical storage is not allocated until it is required or needed. Both parties’ constructions reflect

this requirement. Importantly, DataCore has not identified any requirement that the allocation be based on an *immediate* need. Similarly, DataCore does not address Scale’s argument that requiring immediacy introduces ambiguity in the claim.

DataCore also relies on a discussion in the patent about creating large virtual volumes “without immediately requiring any physical disk space.” *Id.* at 37 (quoting ’235 patent at 2:38-40). But this does not mean that physical disk space is “immediately” allocated when it is needed. It also does not resolve the ambiguity in DataCore’s construction. DataCore’s construction should be rejected as it has not shown that its construction is correct in view of the intrinsic record.

F. “assigned physical storage devices”

1. Plaintiff’s Opening Position

Plaintiff’s Construction	Defendant’s Construction
Plain and ordinary meaning, which is “assigned physical storage devices”	“corresponding physical disk storage space”

This term requires no construction. Defendant effectively admits that “physical storage devices” is capable of reasonable discernment in the context of the ’235 Patent without further clarification, as it proposes the same term as its construction for “physical resources.” *See* Section III.D.1. Accordingly, the only dispute between the Parties is whether “assigned” requires a separate construction—it does not.

Defendant’s proposed construction equating “assigned” with “corresponding” is not only unnecessary, but it finds no basis in the claims, specification, or prosecution history. Furthermore, unasserted dependent claims 17–21 demonstrate that the inventors understood “corresponding” to have a different meaning than “assigned.” (*See* ’235 Patent at cls. 17–21 (reciting various uses of the term “corresponding”)); *Curtiss-Wright*, 438 F.3d at 1380. The inventors knew how to draft claims incorporating the term “corresponding,” yet still chose to draft claims 1 and 2 using

“assigned.” Accordingly, DataCore respectfully submits that this term requires no construction and should be afforded its plain and ordinary meaning.

2. Defendant’s Answering Position

Term	DataCore’s Construction	Scale’s Construction
“assigned physical storage devices” ’235 patent, claims 1, 2	Plain and ordinary meaning, which is “assigned physical storage devices”	“corresponding physical disk storage space”

Scale’s proposed construction is consistent with the claim language and will assist the fact finder in correctly applying the claim scope to the issues in the case. The claims clearly recite that the physical storage devices are “assigned” to a storage pool, meaning that there are physical storage devices corresponding to the storage pool. *See* ’235 patent, at 14:9-12 (claim 1: “defining a storage pool to which one or more physical storage devices is assigned by selection from a plurality of available physical storage devices, the assigned physical storage devices having a total logical size.”); *id.* at 14:43-46 (claim 2: same). Moreover, the “physical storage” recited in the claims is described throughout the patent as referring to a physical disk. *See, e.g., id.* at 6:19-22 (“[P]hysical resources are allocated to NMVs based upon actual demand. Preferably, the physical disks that are contained in a storage pool are divided into physical chunks that also have the chunk size.”). And the patent expressly provides that “chunks of physical storage are placed on the physical disk.” *Id.* at 9:65-66. It is helpful and consistent with the intrinsic record, therefore, to clarify that the “assigned physical storage devices” recited in the claims refer to “corresponding physical disk storage space.”

3. Plaintiff's Reply Position

Plaintiff's Construction	Defendant's Construction
Plain and ordinary meaning, which is "assigned physical storage devices"	"corresponding physical disk storage space"

This term requires no construction. Defendant's attempt to replace "assigned" with "corresponding" is unnecessary and is at best an attempt to import limitations from the specification into the claim language—a practice that is contrary to the law on claim construction. *See Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) ("While we read claims in view of the specification, of which they are a part, we do not read limitations from the embodiments in the specification into the claims."). Defendant identifies two portions of the specification—both of which use the word "assigned" rather than "corresponding"—to support its allegations, but ignores the remainder of the intrinsic record. *Phillips* indicates that claim interpretation should start with the claims, and the Court need look no further in this instance. *See Phillips*, 415 F.3d at 1314. As discussed in its Opening Brief, unasserted dependent claims 17–21 demonstrate that the inventors understood "corresponding" to have a different meaning than "assigned." (*See supra* at 39; '235 Patent at cls. 17–21 (reciting various uses of the term "corresponding")). The inventors knew how to draft claims incorporating the term "corresponding," yet still chose to draft claims 1 and 2 using "assigned." *See Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006).

The "physical storage devices" component of this term also requires no construction.⁵ The '235 Patent specification provides multiple examples of "physical storage devices." (*See, e.g.,*

⁵ In an attempt to shore up its narrowed construction, Defendant backtracked on its construction for physical resources. (*See supra* at 31, n.4.) Defendant's initial construction for the term "physical resources" was "available physical storage devices," suggesting that "physical storage devices" was a term that would be reasonably understood to one of skill in the art. (*See id.; supra*

'235 Patent at 4:5-9 (“magnetic hard disks are just one of the types of physical storage devices The physical devices can also include optical, magneto-optical and other[] types, alone or in various combinations.”).) Importantly, the specification indicates that the “physical storage devices could be of various *types* and sizes.” ('235 Patent at 2:18-19 (emphasis added).) Defendant’s focus on “physical disk storage *space*” conflicts with the specification’s treatment of this term, in that it does not address the various *types* of storage devices, and instead focuses on the size only. Accordingly, DataCore respectfully requests that the Court decline to provide a specific construction for “physical storage devices” and instead indicate that the term be given its plain and ordinary meaning.

4. Defendant’s Sur-Reply Position

DataCore incorrectly argues that Scale’s proposed construction imports limitations from the claim because Scale proposes “assigned” to mean “corresponding.” *Supra* at 40-41. It is unclear, however, what DataCore is referring to when it alleges that Scale’s construction imports limitations from the specification. DataCore acknowledges that the evidence Scale relies on for this interpretation are the claims themselves, which do not use the word “corresponding.” *Id.* As Scale has shown, the claims define the relationship between “the storage pool” and the “physical storage devices” as one where the “physical storage devices” are assigned to “the storage pool” meaning that the “assigned physical storage devices” are those that *correspond* to the storage pool. *Supra* at 40.

DataCore’s claim differentiation argument is also incorrect. *Supra* at 41. DataCore cites to *Curtiss-Wright Flow Control Corp. v. Velan, Inc.* and appears to rely on claim differentiation to

at 39.) Defendant now seeks to withdraw that argument, under the guise that this reduces the disputes between the parties. (*Supra* at 31, n.4.) Defendant’s modified construction should not be construed as anything other than a late attempt to correct its own inconsistent claim interpretation of the plain meaning of the term “assigned physical storage devices.”

argue that the term “assigned” cannot mean “corresponding” simply because other claims use the term “corresponding.” *Id.* (citing 438 F.3d 1374, 1380 (Fed. Cir. 2006)). But in *Curtiss-Wright Flow Control Corp.*, the Federal Circuit explained that “claim drafters can also use different terms to define the exact same subject matter” and “this court has acknowledged that two claims with different terminology can define the exact same subject matter.” 438 F.3d at 1380. The Court also “cautioned that ‘claim differentiation is a guide, not a rigid rule.’” *Id.* at 1381. Moreover, DataCore provides no analysis for its claim differentiation argument. In fact, DataCore overlooks that the other claims reciting “corresponding” (claims 17-21) depend on claim 3, which is directed to a different invention—a computer program product—that is distinct from the inventions in asserted claims 1 and 2. DataCore’s claim differentiation argument is not supported by the facts or the law, and should be rejected.

DataCore also argues that the “physical disk storage space” portion of Scale’s proposed construction conflicts with the specification but is unclear why DataCore believes this to be the case. DataCore Reply Br. at 8. The portion of the specification DataCore cites to is consistent with Scale’s construction as it describes different examples of disks—“optical, magneto-optical and other[] types, alone or in various combinations.” *Id.* (quoting ’235 patent at 4:5-9). DataCore’s objection seems to be that Scale’s construction does not include every example recited in the specification. There is, however, no legal requirement that a construction exhaustively recite every example found in the specification. In sum, DataCore has not provided any reason why Scale’s construction should not be adopted.

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